

**REMARKS****1. Does Arik Teach Use of a Catalyst to Remove Gases from a Circulating Liquid?**

The claim requires a catalyst material to remove gases from the circulating liquid. The catalyst material in the cited reference is a catalyst that causes carbon nanotubes to grow. See column 3, lines 21-35.

The final rejection notes that liquid is evaporated in the catalyst lined trenches. But the catalyst has nothing whatsoever to do with that evaporation. Thus, the catalyst is not to remove gases from the circulating liquid, but, rather, merely to grow carbon nanotubes. The fact that the catalyst for growing carbon nanotubes is there when liquid naturally evaporates off is of no moment since the claimed limitation is not met.

Reconsideration is requested.

**2. Does Arik Teach Channels that Align with the Trench to Allow Fluid Circulation Completely Across the Substrate from One Side of the Substrate to the Other and Through the Trench?**

The claim requires channels that align with the trench to allow fluid circulation completely across the substrate.

The Examiner suggests that the grooves can be formed on both the top and the bottom of the combined substrates. But, even if this is so, the groove is already shown in only one of the two opposed substrates. Forming the trench partially in the top substrate and partially in the bottom does not extend the sideways length of the trench. It is still too short, as it was before, even if this modification were attempted.

Further, it is suggested that Arik implies that the grooves would have been formed across either wafer from side to side since the fluid flows through the channels formed within the grooves. But this is incorrect. The length of the channels is better shown in Figure 4. They merely radiate outwardly from the center, but do not go completely across the substrate, as indisputably shown there.

Reconsideration is requested for this additional reasons.

**3. Does Arik Teach Protecting the Catalyst When Forming the Channels?**


The claim also requires protecting the catalyst when forming the channels.

Arik teaches using a material to define the position of the catalyst. For example, that material may be spread apart and may have openings where the catalyst goes. Thus, any place where the catalyst overlaps the material, the catalyst is removed and anywhere else it stays. But, necessarily, that material cannot protect the catalyst when forming the channels because that material is only in the places where the catalyst does not end up. As a result, it leaves the catalyst always unprotected and, necessarily, the catalyst is unprotected when forming the channels. Moreover, it appears that the channels are formed before the catalyst is deposited.

For all these reasons, reconsideration is requested.

Respectfully submitted,

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